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IS 15341 (2003): Fenvalerate DP [FAD 1: Pesticides and Pesticides Residue Analysis]

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भारतीय मानक

फेनवेलेरेट डी पी — विशिष्टि

Indian Standard

FENVALERATE DP — SPECIFICATION

ICS 65.100.10

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

September 2003

Price Group 2

Pesticides Sectional Committee, FAD 1

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Pesticides Sectional Committee had been approved by the Food and Agriculture Division Council.

Fenvalerate DP is used an insecticidal formulation.

The material is generally manufactured to contain 0.4 per cent (*m/m*) of fenvalerate.

In the preparation of this standard, due consideration has been given to the provisions of the *Insecticides Act*, 1968 and the Rules framed thereunder. However, this standard is subject to the restrictions imposed under the Act and Rules wherever applicable.

For the purpose of deciding whether a particular requirement of this standard compiled with the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

FENVALERATE DP — SPECIFICATION

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for fenvalerate dusting powder.

2 REFERENCES

The following standards contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below :

IS No.	*Title*
1070 : 1992	Reagent grade water (*third revision*)
6940 : 1982	Methods of tests for pesticides and their formulations (*first revision*)
8190 (Part 1) : 1988	Requirements for packing of pesticides: Part 1 Solid pesticides (*second revision*)
10627 : 1983	Methods for sampling of pesticidal formulations
12003 : 1987	Specification for fenvalerate, technical

3 REQUIREMENTS

3.1 Constituents

3.1.1 The material shall consist of fenvalerate technical, uniformly incorporated in a suitable inert filler and other adjuvants.

3.1.2 Fenvalerate technical employed in the formulation of this material shall conform to IS 12003.

3.2 Description

The material shall be in the form of a homogenous powder, free flowing and devoid of lumps. The material, when dusted from a hand rotary duster, shall issue freely without clogging or bridging.

3.3 The material shall also comply with the requirements given in Table 1.

3.3.1 *Fenvalerate Content*

3.3.1.1 When determined by the method prescribed in Annex A of IS 12003, the observed fenvalerate content percent (*m/m*) of any of the samples shall not differ from the declared nominal value by more than the per cent tolerance limits indicated below:

Table 1 Requirements for Fenvalerate DP

(*Clauses* 3.3 *and* 7.1)

Sl No.	Characteristics	Requirement	Method of Test, Ref to	
			Annex of IS 12003	Clause No. of IS 6940
(1)	(2)	(3)	(4)	(5)
i)	Fenvalerate content, percent by mass, *Min*	Nominal value as declared on the container (*see* **3.3.1**)	A	—
ii)	Colour	As per agreement between the purchaser and the supplier	—	—
iii)	Sieving (material passing through 75 micron IS sieve) percent by mass, *Min*	90	—	12
iv)	Bulk density after compacting	Not to exceed the value obtained before compacting by more than 60 percent	—	12.2
v)	Acidity (as H_2SO_4), percent by mass, *Max*	0.2	—	11.3
vi)	Alkalinity (as NaOH), percent by mass, *Max*	0.5	—	11.3

Nominal Value, Percent	*Tolerance Limit*	
Up to 1	+ 20 − 10	percent of the nominal value
Above 1 and up to 9	+ 10 − 5	
Above 9 and below 50	± 5	
50 and above	+ 5 − 3	

3.3.1.2 Extrection of fenvalerate content in fenvalerate DP is to be followed as prescribed in Annex A of this standard.

3.3.2 The actual value of fenvalerate content in the formulation shall be calculated to the third decimal place and then rounded off to second decimal place before applying the tolerance given in **3.3.1**.

4 PACKING

The material shall be packed in dry and clean containers made of mild steel with a polyethylene liner; tinplate internally coated with a corrosion-resistant lacquer; polyethylene lined fibreboard or double hession jute bags or HDPE woven sacks; or DW tarpaulin laminated jute bags. These form the primary, secondary and transport packages as well. The containers shall also meet the general requirements given in IS 8190 (Part 1).

5 MARKING

5.1 The containers shall bear legible and indelibly the following information in addition to any other information as required under the *Insecticides Act*, 1968 and Rules framed thereunder:

a) Name of the material;
b) Name and address of the manufacturer;
c) Batch number;
d) Date of manufacture;
e) Date of expiry;
f) Net mass of contents;
g) Nominal fenvalerate content, percent (*m/m*);
h) A cautionary notice worked as in the *Insecticides Act*, 1968 and Rules framed thereunder; and
j) Any other information required under the *Standards of Weights and Measures (Packaging Commodities) Rules*, 1977

5.2 BIS Certification Marking

The product may also be marked with the Standard Mark.

5.2.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

6 SAMPLING

When freshly manufactured material in bulk quantity and/or the retail pack of the formulated product is/are offered for inspection , representative sample of the material shall be drawn and tested as prescribed in IS 10627 and if tested within 90 days of its date of manufacture, the criteria for conformity shall be the contents in percent (*m/m*), shall not be less than the declared nominal value. The upper limit for conformity shall be the same as those given in **3.3.1**.

When the material is offered for inspection after 90 days of its manufacture, sampling shall be done as prescribed in IS 10627, however, the criteria for conformity of the material, when tested, shall be the limits of tolerances, as applicable over the declared nominal value and given under **3.3.1**.

7 TESTS

7.1 Tests shall be carried out by the methods referred in col 4 and 5 of Table 1.

7.2 Quality of Reagents

Unless specified otherwise, pure chemicals and distilled water (*see* IS 1070) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities, which affect the results of analysis.

ANNEX A

(*Clause* 3.3.1.2)

DETERMINATION OF FENVALERATE CONTENT

A-0 METHODS

A-0.1 Fenvalerate content in fenvalerate dusting powder shall be analyzed essentially adopting the methods given in Annex A of IS 12003 with the following changes.

A-1 In high performance liquid chromatographic method, the following will replace **A-1.5.1** of IS 12003.

Weigh out accurately about 12 g of the sample in a 100 ml beaker. Add to it 40 ml acetone. Stir it intermittently and set it aside for 30 min. Filter under vacuum through a G4 crucible containing a bed of hyflosupercel. Wash the residue with 2 ml × 20 ml portions of acetone and filter through G4 crucible. Collect the filtrate into a 100 ml conical flask . Evaporate solvent to near dryness. Transfer the material quantitatively into a 50 ml volumetric flask using carbon tetrachloride-chloroform mixture. Then pipette out 5 ml of internal standard solution (I_S) into the same flask. Mix well and make up to the mark using solvent system.

A-2 In gas chromatographic method the following will replace **A-2.3.3** of IS 12003.

Weigh out accurately about 20 g of the sample in a 100 ml beaker. And add to it 40 ml acetone. Stir it intermittently and set it aside for 30 min. Filter under vacuum through a G4 crucible containing a bed of hyflosupercel. Wash the residue with 2 ml × 20 ml portions of acetone and filter through G4 crucible. Collect the filtrate into a 100 ml conical flask. Evaporate solvent to near dryness. Transfer the material quantitatively into a 50 ml volumetric flask using internal standard solutions (I_S) and make up to the mark with I_S.

A-3 In ultraviolet spectrophotometric method the following will replace **A-3.4** of IS 12003.

Weigh accurately about 100 mg standard fenvalerate sample into a 100 ml volumetric flask. Dissolve it in carbon tetrachloride and make up to volume. Pipette out 3.0, 4.0, 5.0, and 6.0 ml of this stock solution into a four 50 ml volumetric flasks. Dilute them to the mark with carbon tetrachloride to obtain standard solutions of around 60, 80, 100 and 120 ppm respectively. Fill both the quartz cells with carbon tetrachloride and ensure that the cell error is insignificant (about 0.001) at 278 nm. Obtain the absorbance of the four standard solutions referred to above, at 278 nm against carbon tetrachloride blank. Use cells with lids to eliminate evaporation of carbon tetrachloride. Construct a calibration graph connecting absorbance values (corrected for cell error, if any) and concentrations of fenvelarate (in ppm) in the standard solutions. Measure the slope (*S*) of the calibration graph.

Weigh accurately the quantity of the sample containing 100 mg of the active ingredient into a 100 ml beaker and add to it 40 ml acetone. Stir it intermittently and set it aside for 30 min. Then filter under vacuum through a G4 crucible containing a bed of hyflosupercel. Wash the residue with 2 ml × 20 ml portions of Acetone and filter through G4 crucible. Collect the filtrate into a 100 ml conical flask. Evaporate solvent to near dryness. Transfer the material quantitatively into a 100 ml volumetric flask using carbon tetrachloride and make up to volume. Pipette out 5.0 ml of this solution into a 50 ml volumetric flask. Dilute it to the mark with carbon tetrachloride to obtain a solution of around 100 ppm. Measure the absorbance of this solution at 278 nm against carbon tetrachloride blank. Compute the fenvalerate content of the sample making use of the calibration graph.

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